

MOLLUSCA OF H.M.S. 'CHALLENGER' EXPEDITION.—Part X.

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[Read June 16, 1881.]

Fam. PLEUROTOMIDÆ (*continued*).Gen. PLEUROTOMA, *Lam.*

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| 51. <i>Pleurotoma (Defrancia) hormo-</i>
<i>phora</i> , n. sp. | 58. <i>Pleurotoma (Defrancia) chyta</i> ,
n. sp. |
| 52. <i>P. (D.) chariessa</i> , n. sp. | 59. <i>P. (D.) perpauilla</i> , n. sp. |
| 53. <i>P. (D.) pachia</i> , n. sp. | 60. <i>P. (D.) perparva</i> , n. sp. |
| 54. <i>P. (D.) pudens</i> , n. sp. | 61. <i>P. (Daphnella) compsa</i> , n. sp. |
| 55. <i>P. (D.) araneosa</i> , n. sp. | 62. <i>P. (D.) aulacoëssa</i> , n. sp. |
| 56. <i>P. (D.) streptophora</i> , n. sp. | 63. <i>P. (Borsonia) ceroplasta</i> , n. sp. |
| 57. <i>P. (D.) circumvoluta</i> , n. sp. | 64. <i>P. (B.) silicea</i> , n. sp. |

51. PLEUROTOMA (DEFRANCIA) HORMOPHORA, n. sp. (ὄρμοφόρος, collar-girt.)

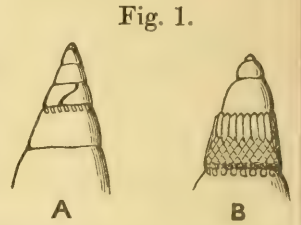
St. 23. Mar. 15, 1873. Lat. 18° 24' N., long. 63° 28' W. Sombrero Island, St. Thomas, Danish W. Indies. 450 fms. *Globigerina*-ooze.

St. 24. March 25, 1873. Lat. 18° 38' 30" N., long. 65° 5' 30" W. North of Culebra Island, St. Thomas, Dan. W. Indies. 390 fms. Coral-mud.

St. 122. September 10, 1873. Lat. 9° 5' S., long. 34° 50' W. Pernambuco. 350 fms. Mud.

Shell.—High and narrow, with no angles anywhere; porcellaneous to ivory-white, a high conical spire, with sharp reticulately sculptured lip; the whorls are slightly convex, and have a row of beads round the top of each; the body-whorl and snout are small, and the base short and contracted. *Sculpture*. Longitudinals—none but excessively oblique, faint, hair-like lines of growth. Spirals—there is a pretty little row of rounded tubercles close to the suture at the top of the whorls—about 16 in each. The surface is also very finely and superficially microscopically scratched. *Colour* ivory-white; but when alive probably porcellaneous, glossy. *Spire* conical, with scarce any interruption in the profile-lines. *Apex* consists of 4 conical yellow whorls, rising to a minute tip; the line of junction between

these and the first regular whorl has a deep sinus above and a very prominent forward curve below. These whorls are ornamented by a system of minute bars, which for the upper half of the whorl run straight downwards (fig. 1, B); there they split into two and form a very regular reticulation on the lower half of the whorl, each mesh being a square. *Whorls* 11 in all, slightly convex, a little high, of very regular increase, each broadening downwards with great regularity, but very slightly, from the upper to the lower suture; the last whorl is a very little tumid, but short and small, and with a short contracted base. *Suture* very little impressed, but rendered definite by the very slight prominence of the edge of the gemmed band below. *Mouth* oblong, pointed above and below. *Outer lip* has a very regular and slight curve from end to end; the edge sweeps very much back at the front of the shell; in the middle of the mouth it is excessively prominent and is rounded, leaving between its shoulder and the body-whorl a very deep, rounded, and open-mouthed sinus. *Inner lip* very thinly excavated in the substance of the shell; it runs very far forward on the bluntly rounded, twisted, and at the point oblique edge of the pillar, which is short and narrow, and at its junction with the body very markedly concave. H. 0·4. B. 0·14. Penultimate whorl, height 0·08. Mouth, height 0·16, breadth 0·08.



Ornamentation on whorls, apex of *P. hormophora*.

I know nothing with which to compare this remarkable species. *Clavatula albicans*, Hinds, 'Sulphur,' p. 23. no. 84, pl. vii. f. 8, has somewhat of its general features; but there resemblance ends. *Trochus (Margarita) nitens*, Jeff., has a somewhat similarly ornamented suture; as has also *Hela margaritifera*, Wats.

52. PLEUROTOMA (DEFRANCIA) CHARISSA, n. sp. (*χαρίεις*, graceful.)

St. 24. March 25, 1874. Lat. 18° 38' 30" N., long. 65° 5' 30" W. N. of Culebra Island, St. Thomas, Dan. West Indies. 390 fms. Coral-mud.

St. 73. June 30, 1873. Lat. 38° 30' N., long. 31° 14' W. West of Azores. 1000 fms. *Globigerina*-ooze. Bottom temperature 39°·4.

St. 78. July 10, 1873. Lat. $37^{\circ} 26'$ N., long. $25^{\circ} 13'$ W. San Miguel, Azores. 1000 fms. *Globigerina*-ooze.

St. 85. July 19, 1873. Lat. $28^{\circ} 42'$ N., long. $18^{\circ} 6'$ W. Palma, Canaries. 1125 fms. Volcanic sand.

St. 122. September 10, 1873. Lat. $9^{\circ} 5'$ S., long. $34^{\circ} 50'$ W. Pernambuco. 350 fms. Mud.

Shell.—High, biconical, a little tumid, carinated, white, thin, faintly, shortly, and obliquely ribbed, with a high, subscalar, small-pointed spire, and a slightly tumid little-contracted base, produced into a long narrow snout. *Sculpture*. Longitudinals—there are on the last whorl about 20 short oblique folds, which die out almost immediately; they are highest at their origin below the sinus-area, and are parted by flat intervals somewhat broader than they; they diminish in number up the spire, and do not reach the lower suture: there are further obsolete lines of growth, which in the sinus-area are strong, and at the suture form sharp little folds parted by wide unequal intervals. Spirals—the sutural area is wide, but scarcely concave; it is bordered by the blunt angulation forming the keel, which is greatly strengthened by the prominence of the origin of the longitudinal ribs. From the keel downwards the shell is covered by superficial, flattened, irregular, and unequal threads parted by narrower shallow furrows; these become slightly stronger and more regular on the snout. *Colour* ivory-white; the apex is ruddy brown. *Spire* conical, high, rather narrow, subscalar, sometimes scalar from the squareness with which the sinus-area stands out in the upper whorls. The lines of profile are very much interrupted by the prominence of the keel. *Apex* small, ruddy brown, consisting of $4\frac{1}{2}$ conical whorls; of these the lower two thirds is covered with very minute reticulations, while the upper part is scored with minute curved bars, the surface between which is very slightly spirally marked; it ends in a minute tip a little bent down on one side. *Whorls* 10 in all, of regular proportions and uniform increase; they are conical above and cylindrical below the keel; the last whorl is slightly tumid, and contracts very gradually to a long and small snout. *Suture* extremely minute as each whorl laps up on the one above it. *Mouth* oblong, pointed above, and drawn out into a long narrow canal below. *Outer lip* is pretty regularly arched from the

Fig. 2.

Reticulations on whorl of *P. chariessa*.

body to the canal, from which point it is drawn out rather straight; its edge advances in the middle very prominently; above this it forms a high shoulder, between which and the body-whorl lies the deep, rounded, and very wide-mouthed sinus; towards the front of the mouth the edge runs straight, then retreats, so as to form a broad, slight, small sinus at the top of the canal, and then runs straight. *Inner lip*: there is a thin glaze excavated slightly in the substance of the shell. The pillar is long, narrow, and fine-pointed, with a slight swelling coiling round its base, where its junction with the body is but slightly concave. H. 0·85. B. 0·35. Penultimate whorl, height 0·16. Mouth, height 0·43, breadth 0·2.

This species has a considerable likeness to *P. torquatum*, Phil.; but that is a larger, broader, stumpier form, has the individual whorls shorter, more strongly keeled, ornamented with little rounded tubercles instead of with narrow, pinched-up, very oblique riblets; has also a much more horizontal suture; the whorls, too, are not cylindrical, but contract from the keel to the lower suture; the base is much more drawn in, and the pillar much shorter; the whole texture also and sculpture is much stronger than in the 'Challenger' species.

The specimens from St. 24 and St. 85 are markedly stumpier in form, more sharply keeled, and with a higher shoulder and a rather smaller embryonic apex; but the whole details of sculpture are identical.

53. PLEUROTOMA (DEFRANCIA) PACHIA, n. sp. ($\pi\alpha\chi\upsilon\varsigma$, fat.)

St. 24. March 25, 1873. Lat. $18^{\circ} 38' 30''$ N., long. $65^{\circ} 5' 30''$ W. North of Culebra Island, St. Thomas, Dan. West Indies. 390 fms. Coral-mud.

Shell.—Ovate, white, smooth, of rounded outlines, with a rather high, small, and sharp-pointed apex, a swollen body-whorl, and a rounded base produced into a small, broad, one-sided snout. *Sculpture*. Longitudinals—there are only very fine hair-like lines of growth, of which here and there at regular intervals one becomes much more strongly marked than the others. Spirals—the whole surface is sparsely scored with very shallow, scratched-out, narrow furrows, parted by flat intervals of from two to six times their breadth; in the sinus-area they are a little closer than elsewhere; on the snout they gradually broaden till their

intervals assume the form of slight rounded threads. *Colour* like a shaving of ivory, from its thinness, gloss, and colour. The apex is buff. *Spire* conical. *Apex* consists of 4 very small, conical, scarcely convex, buff whorls, the upper part of which bears straight little bars, and the lower part is minutely reticulated; below the buff-coloured surface the shell is porcellaneous. *Whorls* 9 in all, slightly straight and sloping below the suture, convexly rounded above, cylindrical below; the last is a little tumid, with a rounded base produced into a short, broad, lop-sided snout. *Suture* very slight, as the inferior whorl laps up on the one above it, but it is defined by the curve of the whorls. *Mouth* oval, pointed above; there is scarcely any canal below. *Outer lip* very thin, a little contracted above, and patulous below; its curve is somewhat flattened about the periphery; its edge forms a very regular curve with a slight shoulder above, between which and the body lies the broad, shallow, rounded sinus. *Inner lip* is a thin narrow glaze which very soon dies out on the oblique, twisted, fine edge of the short conical pillar, beyond whose point the front of the shell advances a good deal: the junction of the pillar and the body is concave. H. 0·46. B. 0·22. Penultimate whorl, height 0·11. Mouth, height 0·24, breadth 0·11.

This species slightly resembles *Daphnella supercostata*, E. Sm., but is more obese, the mouth is shorter, the edge of the sinus is not thickened, and the apex is sharp and sculptured, while in that it is plain and blunt. It most resembles perhaps *Pleurotoma translucida*, Wats.; but that is smooth, and has a blunt rounded apex.

54. PLEUROTOMA (DEFRANCIA) PUDENS, n. sp.

St. 24. March 25, 1873. Lat. 18° 38' 30" N., long. 65° 5' 30" W. North of Culebra Island, St. Thomas, Dan. W. Indies. 390 fms. Coral-mud.

Shell.—Small, oblong, white, smooth, with a high, subscalar, small and sharp-pointed apex, a short and scarcely swoln body-whorl, and a conical base produced into a broadish, triangular, lop-sided snout. *Sculpture*. Longitudinals—besides hair-like lines of growth, there are some faint, very oblique, upwardly convex folds, which are obsolete on the earlier and on the last whorls. Spirals—the surface is covered with superficial rounded threads

which, obsolete in the sinus-area, are feeble on the body, but sharper and more distinct on the base and snout. There is a very faint angulation below the sinus-area. *Colour*: the shell is thin, semitransparent white, with hardly any gloss. *Spire* conical, sub-scalar from the slight short tumidity below the suture. *Apex* consists of 4 embryonic whorls, which are buff, darkening to orange at the tip; they are a little broadly conical, rounded, with a slight angulation, and parted by a distinct suture; they rise to a very minute, spirally scratched, round, and very slightly prominent knob; they are sculptured with raised bars, which are straight and simple above, but oblique and crossed below. *Whorls* $7\frac{1}{2}$ in all; they are slightly concave and shouldered in the sinus-area, which is bordered by a faint angulation, below which they are slightly tumid, without any contraction into the inferior suture; the last, which is rather small, has a conical base produced into a broadish, triangular, one-sided snout. *Suture* slight, inasmuch as the inferior whorl laps up on the one above; but there is an appreciable constriction. *Mouth* oblong, pointed above; there is no canal below except the channel behind the pillar. *Outer lip* very thin; its curve is somewhat flattened; its edge forms a very regular sweep with a rather high shoulder above, between which and the body lies the deepish, but broad, open-mouthed sinus. *Inner lip* very thin and narrow, dying out early on the scarcely oblique or twisted edge of the longish, straight, and conical pillar, the point of which comes short of the lip-edge, and whose junction with the body is concave. H. 0·21. B. 0·1. Penultimate whorl, height 0·04. Mouth, height 0·1, breadth 0·05.

This species somewhat resembles *P. (D.) pachia*, Wats.; but is in all its proportions very much smaller; the whorls, especially the last, are very much less tumid, the spire is distinctly scalar, and the sculpture is very markedly different. Than *Daphnella attenuata*, E. Sm., besides the different apex, the whole shell is smaller, more attenuated, and more delicate.

55. PLEUROTOMA (DEFRANCIA) ARANEOSA, n. sp.

St. 24. March 25, 1873. Lat. $18^{\circ} 38' 30''$ N., long. $65^{\circ} 5' 30''$ W. North of Culebra Island, St. Thomas, Danish West Indies. 390 fms. Coral-mud.

Shell.—Small, yellowish, minutely ribbed and faintly spiralled, with a small, broadish, scalar, sharp-pointed spire, a slightly swollen

body-whorl and rounded base, produced into a square, prominent, one-sided snout. *Sculpture*. Longitudinals—there are exceedingly fine, faint, microscopic scratches in the line of growth; at distances of about $\frac{1}{100}$ of an inch apart these rise into small, sharpish, round-topped riblets, which run continuously from the suture to the snout, though on the base and below it they become feebler; on the earlier whorls these are of course less marked and more close set: in the intervals of the larger riblets one or two fainter ones occasionally appear. Spirals—below the slightly concave sinus-area is an obtuse angulation, accentuated by the slight prominence of the two small spiral threads which lie there; below this there are on the body-whorl above the lip-corner about 5 other small spirals not so prominent; on the lower part of the body and on the base they are weaker, but become stronger again towards the point of the base and on the snout; the intersection of these with the spirals produces a slight spider-web-like appearance*. *Colour* yellowish, without gloss; the apex is buff. *Spire* rather short and broad, scalar, and conical. *Apex* consists of $4\frac{1}{2}$ very small, conical, scalar, convex, buff whorls, parted by a deep suture; the first whorl and half is closely spirally striated with about 10 minute threads: these threads, which are at first almost simple, are by degrees more and more fretted by longitudinals, which break up the threads into minute tubercles: toward the end of the second whorl longitudinal and oblique bars appear somewhat vaguely and confusedly; but presently the distinct arrangement appears of short little bars above and a network on the lower part of the whorls. *Whorls* $7\frac{1}{2}$ in all, but the shell is very likely hardly full-grown: they are almost horizontal above, with a flat or faintly concave sinus-area, slightly angulated at the shoulder, and below this cylindrical or a very little convex to the lower suture; the last is rather short, a little tumid, with a long pillar-line on the left side, and a small square prominent snout on the right. *Suture* very slight in consequence of the up-lap of the whorls at their junction, but of course strongly marked by the angulation of the line of junction. *Mouth* oblong, triangularly pointed above, and ending in a very square broadish canal below. *Outer lip* flatly arched, with a slight angulation below the sinus-area and a marked pinch-in where it turns to form

* From this the name is derived.

the canal; its edge-line is very straight and scarcely prominent, but has a high shoulder above, between which and the body lies the deepish, rounded, and open-mouthed sinus. *Inner lip* very thin and narrow, and dying out very early on the scarcely oblique, twisted, sharp pillar-edge; its line across the body is very short and convex, but is very concave at its junction with the long, scarcely oblique pillar. H. 0·22. B. 0·1. Penultimate whorl, height 0·04. Mouth, height 0·13, breadth 0·04.

This is like *P. (D.) pudens*, but differs markedly in its more angular outlines and square pinched-out snout.

56. PLEUROTOMA (DEFRANCIA) STREPTOPHORA, n. sp. (στρεπτοφόρος, necklace-wearing.)

North Atlantic. April or May 1873. (Station not entered.) Over 1000 fms.

Shell.—White, strong, porcellaneous, stumpy, with a very short body-whorl, a double necklace of tubercles below the suture, a rather high, small-tipped, buff-pointed spire, a rounded base, small, broadish, reverted snout, and a twisted pillar. *Sculpture*. Longitudinals—there are about 12 narrow ridge-shaped ribs on each whorl: they originate below the sinus-area in conical-shaped little tubercles, and die out at the point of the base; they are parted by shallow rounded furrows of about three times their breadth. The lines of growth, which are pretty strong, cover the whole surface. Spirals—close below the suture is a row of small, rather coarse, and not quite regular-rounded tubercles, about 24–26 in number: these form an angulated ring as a sub-sutural margination; adjacent to them is the row of more prominent costal conical-shaped tubercles. The body of the whorl below these is feebly striate. Toward the end of the base is a sharpish furrow succeeded by a broadish flat band, below which on the extreme point of the base is a series of 4 sharp narrow threads and furrows, followed by about as many more, smaller and more crowded on the snout. *Colour* porcellaneous white, glossy, with a buff tip. *Spire* long relatively to the shell, shortly scalar, convexly conical. *Apex*: the extreme tip is broken, but had evidently been very small; two whorls remain, rounded, high, conical, parted by a distinct suture, buff-coloured, minutely straight-barred above and reticulated below, as in the type.

Whorls 5, below the embryonic apex; probably about 9 in all. The rows of infrasutural tubercles give them a minute double keel above with an oblique slope at this part, below which they are cylindrical, or very slightly contracted to the lower whorl: this contraction is distinct on the last whorl, which is very small. The base is rounded and contracted, and ends bluntly in a triangular snout with a slightly reverted point; the advance of the pillar on the left side is rather more than one would have expected. *Suture* small, but very strongly marked. *Mouth* ovate, contracted and angulated above, produced into the broad, open, and oblique canal below. *Outer lip* confused by having been broken and mended; but apparently thickened and probably margined above, very flatly curved with great regularity from end to end; the edge runs very straight with little of prominence, and forms a very slight and shallow rounded sinus near, but not quite close to, the suture, from which it seems to be separated by an extension of the upper beaded line. *Inner lip* broad, formed by a glossy pad above, and below it is slightly excavated into the substance of the shell. It runs straight out along the pillar to the very point, where it meets the very oblique, twisted, and thickened edge: the pillar is thus very short, stumpy, and obliquely cut off in front, reminding one of a *Nassa*; and its whole point is a little twisted and reverted. H. 0·31. B. 0·13. Penultimate whorl, height 0·06. Mouth, height 0·13, breadth 0·07.

57. PLEUROTOMA (DEFRANCIA) CIRCUMVOLUTA, n. sp.

St. 23. March 25, 1873. Lat. 18° 38' 30" N., long. 65° 5' 30" W. North of Culebra Island, St. Thomas, Danish West Indies. 390 fms. Coral-mud.

Shell.—White, strong, with a high, scalar, small, buff-tipped spire, an excessively small body, and a contracted conical base. *Sculpture*. Longitudinals—there are on each whorl about 14 slight, narrow, ridge-shaped, round-topped, oblique and slightly irregular riblets; they rise sharply in obscure tubercles below the sinus-area, and die out at the point of the base; they are parted by shallow rounded furrows of more than twice their breadth. The sinus-area is scored by minute cusp-like remote bars, which generally are not continuous, but are interrupted about the middle, and are more numerous on the lower than the upper half of the area: the lines of growth are extremely fine. Spirals—

the sinus-area is occupied by a broadish, square, impressed furrow; below this there is a square-edged shoulder caused by the projection of the ribs at their origin; this forms a blunt but strongish keel. The rest of the whorl is covered by about 12 fine rounded threads (exclusive of those belonging to the snout, which is broken); the two threads at the keel are close-set; the others are pretty equal and equally arranged; on the penultimate whorl there are about 8 of these threads. *Colour* dead white, probably porcellaneous when fresh; the apex is buff or sandy-coloured. *Spire* high, scalar, conical. *Apex* small, high, conical, with the typical straight bars above, and obliquely reticulated ones below; the two or three of the very tip are broken. *Whorls* 6 below the apex; they are short and broad, of slow regular increase, with a drooping slightly concave shoulder, keeled, and from the keel contracting conically to the inferior suture; the last whorl is very short and small, with a rounded convexly conical base: the extreme point of the pillar and snout is broken. *Suture* obtusely, but angularly, impressed. *Mouth* oval. *Outer lip* almost semicircular, with an angle at the keel; its edge advances very far forward below; above it forms a very deep, wide, funnel-shaped sinus close up to the suture. *Inner lip* slightly excavated, with a very small border. H. 0·36. B. 0·13. Penultimate whorl, height 0·06. Mouth, height 0·1, breadth 0·08. (These measurements are of necessity, from the broken state of the mouth, somewhat hypothetical; but they are at least not exaggerated.)

58. PLEUROTOMA (DEFRANCIA) CHYTA, n. sp. ($\chi\upsilon\tau\acute{o}s$, cast.)

St. 73. June 30, 1873. Lat. 38° 30' N., long. 31° 14' W. West of Azores. 1000 fms. *Globigerina*-ooze. Bottom temperature 39°·4.

Shell.—White, conical, ribbed, with a high, subscalar, small-pointed apex, a short tumid body-whorl, a rounded contracted base, and a small snout. *Sculpture*. Longitudinals—there are on the last whorl 14 ridge-shaped, round-topped, curved, oblique ribs: they are not strong, originate in small rounded beads at an angulation below the sinus-area, and die out on the base: they are parted by shallow rounded furrows of double their breadth; on the first regular whorl they appear as simple beads 9 in number; on the next whorl they assume the form of straight

riblets, whose obliquity increases on each successive whorl: the lines of growth, which are quite independent of the riblets, are very slight. Spirals—there is a row of quite separate, very small, elongated tubercles below the suture: the sinus-area is bordered on its lower side by a very faint and small furrow: the angulation of the whorl below this is chiefly due to the row of beads in which the ribs originate, and here there are several very minute threads: 9 somewhat stronger, equal, and equally parted threads occupy the body from this angle downwards; about 5 others, stronger and wider apart, occupy the base, and about 4 more the snout; here and there a much finer thread occurs in the intervals. *Colour* white. *Spire* high, subscalar, conical. *Apex* small, high, conical, with tumid whorls; the sculpture is typical, *i. e.* with straight bars above and obliquely reticulated ones below; the two or three of the very tip are broken. *Whorls* 6-7, exclusive of those which form the apex, of regular increase, with a drooping concave shoulder, keeled, and below the keel almost cylindrical, but with a very slight contraction to the lower suture; the last whorl is short, tumid, with a rounded base produced into a short, broad, triangular, one-sided snout. *Suture* very slightly impressed and extremely small, as the inferior whorl laps up on the one above it. *Mouth* angularly oval, pointed above, broad in the middle, and obliquely prolonged below into the short canal. *Outer lip* concave in the sinus-area and angulated at the keel; it forms from this point a very regular curve to the front: the edge, which sweeps far out below, forms rather a low shoulder above, between which and the body lies the deep, rather narrow, open-mouthed, rounded sinus. *Inner lip* is excavated, has a slight raised border outside of it, is rather broad, and continues to the extreme point of the short narrowish pillar, which is rather obliquely cut off with a rounded twisted edge, and whose junction with the body is deeply concave. H. 0.54. B. 0.24. Penultimate whorl, height 0.1. Mouth, height 0.24, breadth 0.13.

This species has some resemblance to one which Dr. Gwyn Jeffreys got in the 'Porcupine' dredgings from 994 fathoms, and in the 'Travailleur' dredgings in the Bay of Biscay, and which he proposes to call *Defrancia formosa*—a name with this disadvantage, that there is already a *Pleurotoma formosa* of Reeve. In the 'Challenger' expedition it was got at St. 24, St. 73, St. 78,

and St. 85; but all the specimens are very young. From its reticulated sculpture I had called it *P. (Defrancia) cribraria*. There is another 'Challenger' species it resembles from St. 73, and for which I had chosen the name *P. (D.) smileuta*, unfortunately also a young specimen. The distinction between the present species and these others is expressed by the name *chyta* (χυτὸς, cast); while *P. (D.) smileuta* (σμιλευτὸς, chipped out) is like a thing blocked out of the solid. *P. (D.) formosa*, Jeff., again resembles something on which superficial ornament has been laid and attached by melting. In all three cases there is a resemblance in the forms and sculpture; but under that resemblance there is the strongest difference.

59. PLEUROTOMA (DEFRANCIA) PERPAUXILLA, n. sp.

St. 24. March 25, 1873. Lat. 18° 30' 30" N., long. 65° 5' 30" W. N. of Culebra Island, St. Thomas, Danish W. Indies. 390 fms. Coral-mud.

Shell.—Very small, high and narrow, white, ribbed and spiralled, with convex whorls, a small elongated regular body, impressed suture, a high, conical, small-tipped spire, a rounded base, and a small, longish, triangular, one-sided snout. *Sculpture*. Longitudinals—there are on the latter whorls about 9 biggish flatly rounded ribs, parted by equally broad open rounded furrows; in the upper whorls they barely reach the lower suture; on the last they hardly extend to the base; they originate at a shoulder below the sinus-area; they are thus very short. The lines of growth are very faint, except in the sinus-area, where, round the top of the whorls, the old sinus-scars form a series of short, sharp, regular, remote, little riblets. Spirals—below the sinus-area is a feeble thread; the periphery of the whorls is marked by two sharp, square-topped threads, which form a double keel; the upper one is very near the feeble thread above mentioned: the interval between the carinal threads is about four times their breadth; somewhat more remote, a third thread, equally strong, appears on the last whorl, coming out exactly from the oral angle and defining the base; above and below this, at about equal distances, are two feebler threads; the rest of the base is bare, but the entire snout is covered with very small spiral threads. The entire surface is very minutely scored with microscopic spiral lines. *Colour* frosted white, with a buff apex. *Apex*: there are

four embryonic whorls, which form a high cone with a slightly impressed suture, and rise to a small rounded prominent tip: the sculpture is typical, the tip being scored with some 10 or 12 minute sharp spiral threads, while the other whorls have straight bars on the upper part and reticulated bars below, only the part occupied by the straight bars is exceptionally short. *Whorls* 7-8, of regular increase, with a drooping shoulder, a double carination, and a marked contraction to the inferior suture; the last whorl is very regular in form, with a slightly contracted base, from which projects a small triangular one-sided snout. *Suture* slightly impressed, flatly but minutely marginated below. *Mouth* oval, angulated above, and prolonged into a rather broad and longish canal below. *Outer lip* very regularly curved, but drawn out straight along the canal: its edge, which is rather prominently curved below, forms a somewhat low shoulder above, between which and the body lies the wide-mouthed, deep, rounded sinus. *Inner lip* rather broad and distinct; it is very early cut off on the short pillar at the very oblique twisted edge, which then runs on as a thin sharp margin to the canal: the junction of the pillar and body is rather deeply concave. H. 0.15. B. 0.6. Penultimate whorl, height 0.026. Mouth, height 0.06, breadth 0.03.

This is a very small species; but I think one of the specimens is very nearly full-grown.

60. PLEUROTOMA (DEFRANCIA?) PERPARVA, n. sp.

St. 122. September 10, 1873. Lat. $9^{\circ} 5' S.$, long. $34^{\circ} 50' W.$ Pernambuco. 350 fms. Mud.

Shell.—Small, high and narrow, ribbed and spiralled, with convex whorls, a small short body, impressed suture, a high, conical, scalar, small-tipped spire, a rounded base, and a small, short, triangular, one-sided snout. *Sculpture*. Longitudinals—there are on the last whorl 12, on the earlier one or two fewer, small, straight, rounded ribs, which originate somewhat prominently in an angle of the whorls below the sinus-area, and run down to the point of the base, but do not extend to the snout; they are parted by rounded furrows of nearly three times their width: close below the sinus is a crowded row of very short, small, curved bars—the old sinus-scars. The whole surface is closely, very regularly, and rather sharply scored with lines of

growth. Spirals—the earlier whorls are keeled by three equal, equally prominent, and equally parted rounded threads; on the last whorl others, weaker, appear between these; the lowest of the three loses in importance, and about seven others, not all quite equal nor quite equally parted, occupy the base, while four or five more somewhat similar cover the snout. *Colour* probably white, but stained with mud in which the specimens have lain. *Apex*: there are 4 embryonic whorls, which form a high cone with a slightly impressed suture; the extreme tip has evidently been small, but is broken: the sculpture is not typical, but consists of a series of straight bars ornamented with rough and projecting tubercles; these cross the whorls, but at the top and bottom of the whorls another set of short little bars occur between the larger ones. *Whorls*: these are 9 in all, of regular increase, rather short; above they are slightly concavely horizontal, at the three keels cylindrical, and below this contracted into the inferior suture; the last whorl is very short, a very little swollen, with a very short rounded base and a small snout. *Suture* impressed, but open. *Mouth* small, oval, rounded above, and drawn out into a canal below. *Outer lip* straight in the sinus-area, high-arched in the middle, concave in front, and straight along the canal: the edge forms a high shoulder above, between which and the body is the open, deep, rounded sinus. *Inner lip* thinly excavated, very early cut off at the sharp oblique edge of the pillar. H. 0·23. B. 0·09. Penultimate whorl, height 0·045. Mouth, height 0·09, breadth 0·05.

This species is classed under *Defrancia* only provisionally with a mark of interrogation, in consequence of the departure of the embryonic whorls from the typical sculpture. That sculpture and form of apex may probably serve as the safest basis of classification in the whole group.

61. PLEUROTOMA (DAPHNELLA) COMPSA, n. sp. (κομψός, neat.)

St. 174D. August 3, 1874. Lat. 19° 5' 50" S., long. 178° 16' 20" E. Kandavu, Fiji. 210 fms. *Globigerina*-ooze.

Shell.—High, narrow, fusiform, white, with pale irregular ruddy-brown spots near the suture and at the apex, which is small and sharp; the whorls are rounded and reticulately ribbed, the last narrow and drawn out on the base; it has a high subscalar spire; the mouth is long and rather narrow, the outer lip thickened within and without, with a small sinus above and a

distinct canal in front. *Sculpture*. Longitudinals—on the earlier whorls there are sharp, narrow, prominent, slightly oblique, remote ribs; these increase in number and diminish in distinctness, till on the last whorl they are very numerous, crowded, and insignificant: this arises from intermediate riblets, which are almost invisible on the earlier whorls, reaching on the last a prominence equal to that of the others; these are best seen in the sinus-area. Behind the lip is a strong and broad varix, scored with the riblets, and bevelled off to a thin prominent edge. Spirals—the whole surface is covered with fine sharp raised spirals, very often alternating with finer ones in the intervals; they are separated by shallow square furrows of about the same breadth as the spirals; at their intersections with the longitudinals they are slightly nodose: in the sinus-area there are only fine crowded spirals, whilst on the snout these are strong and remote. *Colour* dead porcellaneous white, with a few faint ruddy-brown blotches near the top of the whorls and toward the outer lip. *Spire* high, conical, scalar. *Apex* small, sharp, conical, consisting of 3–4 ruddy rounded embryonic whorls, the sculpture of which is that of the typical *Defrancia* group, *i. e.* the upper half of the whorls is scored longitudinally by very numerous minute, sharp, raised, curved bars, which split into two and cover the lower half of the whorls with exquisite little square-shaped reticulations formed by the crossing of the bars. *Whorls* 9–10 in all, of regular, but rather rapid increase: they are at first rather broad, but the penultimate is high and the last rather long and narrow; they rise in steps one above another, being a little flattened above, are well rounded, and have a slight contraction into the lower suture; the last is produced into a very lop-sided, long, and somewhat oblique and obliquely truncated snout. *Suture* is strongly marked by the slight contraction of the whorl above, and a constriction of the shoulder of the whorl below, but is not really deep, for the inferior whorl laps up on that above it. *Mouth* long, narrow, oblong, sharply pointed above, and produced into an open broadish spout-like canal below. *Outer lip* forms a regular flat curve to the canal, where it is slightly concave and then straight; at its junction with the body there is a strongly marked little rounded nick which cuts into the edge, but is bordered by a small encircling pad lying between it and the body-whorl; this nick is the generic sinus, and the scars of it are marked on all the whorls; the extreme edge of the lip is thin and sharp, but there is a

strongish white porcellaneous pad a little way within; this pad does not extend to the canal, the edge of which at the point is very obliquely cut off from right to left. *Inner lip*, as mentioned there is a small pad above formed by an extension of the outer lip: this is continued across the body as a porcellaneous layer, thinning out and disappearing on the pillar, which is cut off in front with a long obliquity, whose edge is rounded, but hardly twisted. H. 0·8. B. 0·27. Penultimate whorl, height 0·14. Mouth, height 0·42, breadth 0·13.

This is a very beautiful species in form and in sculpture. It may perhaps best be compared with *P. hyalina*, Reeve, or with *Mangelia cylindrica*, Reeve, or *M. gracilis*, Reeve, or *M. fragilis*, Reeve, but is not very much like any of them. Its apex distinctly connects it with the *Defrancia* group of which *Daphnella** (f. *auctorum nec Hinds*) is a subdivision; and I have accordingly placed it here, though aware that it is not very like some of the species which have been thus named.

62. PLEUROTOMA (DAPHNELLA) AULACOËSSA, n. sp. (αὐλακώεις, furrowed.)

St. 188. September 10, 1874. Lat. 9° 59' S., long. 139° 42' E. W. of Cape York, off the S.W. point of Papua. 28 fms. Mud.

Shell.—High, narrow, fusiform, white; the whorls are convexly cylindrical; the spire high, narrow, subscalar, and conical; the body-whorl is long, narrow, and conical, with a small snout; the lip has a thin crimped edge; the sinus is small, but very well defined at the extreme top of the long narrow mouth. *Sculpture*. Longitudinals—there are on each whorl many (27 on penultimate, about 40 on the last whorl) fine, rounded, curved threads, which correspond with the old lines of growth; they are parted by minute furrows, which are rather narrower than the threads. These longitudinals extend to the base, but not to the snout. Spirals—the riblets are crossed by very similar spiral threads which form minute knots at the crossings, and these are parted by little furrows which are rather wider and less regular than the longitudinal ones, and have occasionally subsidiary threadlets in the middle: there are about 7 of these spirals on the penultimate and about 14 on the last whorl: the sinus-area has very faint

* Hinds, who is the author of this genus (see Zool. 'Sulphur,' p. 25), puts it after *Conopleura* and before *Mangelia*, but gives no further indication of its family relations. Its connexion with *Defrancia* is therefore with me more a hope than a conviction.

threadlets, about three in number, and the first regular spiral below these is stronger than all the rest, and forms a slight keel; they cover the whole snout. *Colour* white. *Spire* high, conical, subscalar. *Apex* small, sharp, consisting of three (probably, for the extreme tip is broken) embryonic whorls which have the typical *Defrancia*-sculpture, the upper third being straight barred and the lower two thirds reticulately barred; but the sculpture is very fine. *Whorls* about 8 in all, of regular but rapid increase; in form convexly conical, slightly shouldered above: the last, which is narrow, is produced into a convexly conical base and a short oblique-ended snout. *Suture* is slightly impressed, and is somewhat strongly marked by the swelling of the whorl immediately below. *Mouth* narrowly oblong, bluntly pointed above, where it runs out into the small but rather deeply impressed and rounded gutter of the sinus, and produced below into a broadish canal. *Outer lip* regularly curved, but at the canal flattened; the edge forms a regularly curved sweep, prominent in the middle, and retreating into the sinus and canal; it is slightly contracted, sharp, crimped rather than toothed, thickened a little way within; in the sinus it is blunted and rounded into a gutter: an extension of the outer lip surrounds the sinus and forms a small pad between that and the body-whorl. *Inner lip*: there is a very thin glaze on the body and pillar: the edge of the pillar in front has a very slight oblique bend, and is sharply rounded, but scarce twisted. H. 0.31. B. 0.12. Penultimate whorl, height 0.07. Mouth, height 0.15, breadth 0.05.

This markedly belongs to the same group as the preceding. It has the same *Defrancia* apex and much the same form as that, and is therefore comparable with the species there referred to; but it is obviously very distinct from them all.

63. PLEUROTOMA (BORSONIA) CEROPLASTA, n. sp. (κήροπλαστὸς, waxen.)

St. 24. March 25, 1873. Lat. 18° 38' 30" N., long. 65° 5' 30" W. N. of Culebra Island, St. Thomas, Danish W. Indies. 390 fms. Coral-mud.

Shell.—High, narrow, biconical, with a tall blunt spire, a slightly impressed suture, and a shortish base: the whorls are feebly ribbed and very obsoletely spiralled. *Sculpture*: there are on the earlier whorls about 12, on the last two whorls about 14 elongated tubercles, which project bluntly and slightly above

the middle of the whorls, and are obliquely and feebly produced to the inferior suture; they are obsolete on the base: the surface is closely scratched with fine, somewhat unequal lines of growth. Spirals—there is a very slight pad which forms an inferior margin to the suture; below this is a hardly concave furrow, on the lower side of which the whorls are angulated by the projection of the tubercles: the lower part of the whorls is very obsoletely marked with broad flat spiral threads, which may be traced to the tip of the snout. *Colour* pale waxy white, whence the name. *Spire* conical, with profile-lines interrupted by the prominence of the keel, from which both above and below is a contraction into the suture. *Apex* consists of 2 tumid rounded whorls of nearly equal size, with a very slight suture. *Whorls* 8 in all, of slow and regular increase; the last is small, with a rounded conical base and a smallish snout: they are angularly convex, with a slight contraction into the suture, both at top and bottom of the whorls. *Suture* a little impressed, rather oblique. *Mouth* small and narrow, pear-shaped, scarcely angulated above, and drawn out into a rather narrow canal in front. *Outer lip* regularly curved above, flat in front: the edge retires slightly below the suture, so as to form the deep rather narrow sinus, whose lower side is made by the very high and prominent shoulder, which advances very far forward, and still continues to do so though more slightly on to the edge of the canal, where it again retires to the left. *Inner lip*: there is a thin glaze on the body and pillar whose union is very slightly concave: the generic fold is a prominent, rounded, narrow thread which coils round the pillar about the middle and parallel to the suture: the front of the pillar is narrow, twisted, and oblique. H. 0·5. B. 0·2. Penultimate whorl, height 0·08. Mouth, height 0·23, breadth 0·09.

It is interesting to add a new species, and that from the Atlantic, to the few living Pacific species of this Tertiary fossil genus. The whole aspect of the shell is that of a *Pleurotoma* of the *Surcula* group.

64. PLEUROTOMA (BORSONIA) SILICEA, n. sp.

St. 122. September 10, 1873. Lat. 9° 5' S., long. 34° 50' W. Off Pernambuco. 350 fms. Mud.

Shell.—High, narrow, biconical, with a tall, blunt, scalar spire, and a short contracted base: whorls angulated, but hardly prominent above, tubercled but scarcely ribbed, obsoletely spiralled. *Sculpture*: there are in the middle of the whorls small

rounded tubercles, of which there are about 11 on the first ordinary and 16 on the last whorl; on the earlier whorls they are feebly prolonged downwards as riblets, but become weaker on the last whorls. The whole surface is closely scratched with hair-like and somewhat irregular lines of growth. Spirals—an exceedingly slight pad forms a faint inferior margination to the suture: between this and the line of tubercles the profile is oblique and straight, not concave: below the keel formed by the tubercles are a few very faint and sparse spiral threads. *Colour* pale flinty, whence the name. *Spire* conical, with interrupted profile-lines. *Apex* consists of two glossy, tumid, rounded whorls of nearly equal size, and with a very slight suture. *Whorls* 8 in all, of slow and regular increase; they are shouldered above and almost cylindrical below the keel; the last is small, contracts from the keel, and has a short, conical, hardly tumid base prolonged into a short small snout. *Suture* very slightly impressed, rather oblique. *Mouth* small, narrow, pear-shaped, angulated above, and drawn out into a short open canal in front. *Outer lip* steeply curved above, a little flatly prolonged forward; its edge, which retreats at the canal, is prominently rounded in the middle, and forms a high shoulder above, between which and the body is the rather deep, narrow, rounded sinus. *Inner lip*: there is a thinnish glaze on the body and pillar, whose union is very slightly concave; at that point occurs the generic fold, which is somewhat remote within the mouth, and is a rather strong thread; the front of the pillar is rather oblique, sharpish, and twisted. H. 0·41. B. 0·15. Penultimate whorl, height 0·06. Mouth, height 0·09, breadth 0·07.

This species differs from the preceding (which it very much resembles) in that the shell is smaller, the whorls more sharply keeled (the carination, too, higher), the contraction of their lower part less marked, the tubercles are rounder and tend less to be drawn out into riblets, the form of the shell is narrower, and the apex is much smaller.